

20041207.ba v03_n735.bam.20041207

>From ???@??? Tue Dec 7 08:23:17 2004 -0600
Date: Tue, 7 Dec 2004 08:21:31 CST
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 3735
Message-Id: <20041207142132.01AFE215AF8@srvr1.theporch.com>

BOATANCHORS Digest 3735

Topics covered in this issue include:

- 1) Re: Fw: The ARRL Letter, Vol 23, No 47
by wb3fau@att.net
- 2) RE: EF Johnson VFO Mod Instructions?
by "Freeberg, Scott (STP)" <Scott.Freeberg@guidant.com>
- 3) Re: EF Johnson VFO Mod Instructions?
by "Tom Rauch" <w8ji@contesting.com>
- 4) Re: EF Johnson VFO Mod Instructions?
by WA5CAB@cs.com
- 5) Re: EF Johnson VFO Mod Instructions?
by Gary Woods <garygarlic@earthlink.net>
- 6) Re: EF Johnson VFO Mod Instructions?
by "Tom Rauch" <w8ji@contesting.com>
- 7) Re: EF Johnson VFO Mod Instructions?
by Mike Hanz <AAF-Radio-1@cox.net>
- 8) Re: EF Johnson VFO Mod Instructions?
by WA5CAB@cs.com
- 9) Re: EF Johnson VFO Mod Instructions?
by WA5CAB@cs.com
- 10) Re: EF Johnson VFO Mod Instructions?
by "Arden Allen" <gumbear@pacbell.net>
- 11) Re: EF Johnson VFO Mod Instructions?
by "Arden Allen" <gumbear@pacbell.net>
- 12) Re: EF Johnson VFO Mod Instructions?
by "Brian Clarke" <brianclarke01@optusnet.com.au>
- 13) Re: EF Johnson VFO Mod Instructions?
by "Tom Rauch" <w8ji@contesting.com>
- 14) Re: EF Johnson VFO Mod Instructions?
by "Tom Rauch" <w8ji@contesting.com>
- 15) Re: EF Johnson VFO Mod Instructions?
by Bob Roehrig <broehrig@aurora.edu>
- 16) Re: EF Johnson VFO Mod Instructions?
by David Stinson <arc5@ix.netcom.com>

From: wb3fau@att.net

To: Old Tube Radios <boatanchors@theporch.com>
Cc: stuck in 50s <polepeeg@ba-watch.org>
Subject: Re: Fw: The ARRL Letter, Vol 23, No 47
Date: Mon, 06 Dec 2004 16:26:42 +0000
Message-Id:
<120620041626.27225.41B48841000F34FB00006A5921587667209A0E00CC0D99@att.net>

On the bandwidth, yes there are some who really do "go to hell with the joke" You can hear 10kc away from their center freq.

The problem is different thruout the country- here in the Northeast, we operate mostly 7290-7295kc on 40. In the last year, everyone has been real polite about it, at least in NE. I have heard some venture down to 7280, and ask if the freq in use? SSB stations, if using 90-95 will move on if they find AMers there.

I don't see a problem, some people need to grow up, other a little more tolerant. There are a few that cause this, they also have a problem with bad landguage. Hey, lets keep this fun, and theres room for everybody. Russ.

content-class: urn:content-classes:message
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable
Subject: RE: EF Johnson VFO Mod Instructions?
Date: Mon, 6 Dec 2004 11:13:26 -0600
Message-ID: <42ECC21B33DFF245BAFAF57274BA5CE5016EC342@stpmse04.stp.guidant.com>
From: "Freeberg, Scott (STP)" <Scott.Freeberg@guidant.com>
To: Old Tube Radios <boatanchors@theporch.com>

Yeah I had this problem shortly after buying my Valiant. My experience: =
=20

1. The problem is due to the original resistor being under rated power =
wise. Part is running too hot. Over time, age, phase of the moon, the =
resistance value decreases, probably exponentially, until too much =
current is being drawn, part burns up, other stuff damaged. Just put =
the same value in, 5 watts or higher.

2. No you don't have to remove the front panel unless you want too. =
Granted it isn't fun digging into the side, but the side of the VFO =
comes off.

3. You can put the new resistor back into the VFO compartment. From a =
heat prospective, I don't think it makes a hoot of a difference if the =
compartment is running a bit hotter. I say this after taking mine out =
of the compartment :) I don't know if I could have physically installed =

the resistor with the limited access I had to the VFO compartment =
though. I put mine under the chassis. It was easy to connect the two =
wires and bring them down through the existing vfo chassis grommet. =20

I think the only important thing here is to leave the resistor value the =
same and just up the wattage, and its really not an issue where it goes =
or how you get to it.

73, SCott WA9WFA

Message-ID: <021b01c4dbf2\$947e72e0\$6601a8c0@akorn.net>

From: "Tom Rauch" <w8ji@contesting.com>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Mon, 6 Dec 2004 19:20:38 -0500

MIME-Version: 1.0

Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

1. The problem is due to the original resistor being under
rated power wise. Part is running too hot. Over time, age,
phase of the moon, the resistance value decreases, probably
exponentially, until too much current is being drawn, part
burns up, other stuff damaged. Just put the same value in,
5 watts or higher.>>>

I think they planned on 150 V across the resistor and that
means 1.5 watts in a 2-w resistor. Bad idea.

Carbon resistors should NEVER be used in critical voltage
dropping applications. Carbon, being a semiconductor, tends
to fail shorted.

Even if a carbon resistor is used well within its power
rating, it tends to age lower in resistance value over time.
If we simply used a metal film or oxide resistor, even one
of the same power rating, the problem would vanish.

Sylvania learned this lesson well in a hybrid chassis that
dropped 350V HV down to 20 volt (or something along those
lines). They even had fires from it, despite the resistor
have enough margin when you look only at ambient temperature
and dissipation rating. They ran a 2w carbon at 1 watt.

Dentron had the same problem with equalizing resistors. I
warned them about that. Now look around at other amps, and
the equalizing time bombs.

Carbon=wrong part for power resistors in applications where large decrease in value causes catastrophic system failure, no matter how much headroom you think you have. Diamonds are forever, carbon power resistors are not.

73 Tom

From: WA5CAB@cs.com
Message-ID: <62.49a08aec.2ee65ad3@cs.com>
Date: Mon, 6 Dec 2004 20:01:07 EST
Subject: Re: EF Johnson VFO Mod Instructions?
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="part1_62.49a08aec.2ee65ad3_boundary"

--part1_62.49a08aec.2ee65ad3_boundary
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit

Tom,

I won't take exception with your Sylvania or Dentron examples. I'm sure that they happened. But in my lifetime (I'll soon be 61), I've repaired or restored an unknown number but certainly in the hundreds of WW-II and Korean War vintage military radios and related accessories. I've checked and sometimes had to replace lots of carbon composition resistors and with the possible exception of a few really crispy critters, it was invariably because they had aged out of tolerance high, not low. Same comment applies to unused ones. I've thrown out a fair number that were high but never that I can recall any that were low.

In a message dated 12/6/2004 6:34:48 PM Central Standard Time, w8ji@contesting.com writes:

> Carbon resistors should NEVER be used in critical voltage
> dropping applications. Carbon, being a semiconductor, tends
> to fail shorted.
> Even if a carbon resistor is used well within its power
> rating, it tends to age lower in resistance value over time.
> If we simply used a metal film or oxide resistor, even one
> of the same power rating, the problem would vanish.

73

Robert Downs - Houston

<<http://www.wa5cab.com>> (Web Store)

<wa5cab@cs.com> (Primary email)

<wa5cab@houston.rr.com> (Backup email)

--part1_62.49a08aec.2ee65ad3_boundary

Content-Type: text/plain; charset=us-ascii

Content-Transfer-Encoding: 7bit

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* * * * *
*      ---REMAINDER OF MESSAGE TRUNCATED---      *
*      This post contains a forbidden message format      *
*      (such as an attached file, a v-card, HTML formatting) *
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*      is not set to send PLAIN TEXT ONLY and needs adjusting *
* * * * *
```

--part1_62.49a08aec.2ee65ad3_boundary--

From: Gary Woods <garygarlic@earthlink.net>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Mon, 06 Dec 2004 20:20:18 -0500

Message-ID: <lu0ar0pm46e02cpb0e4hrphk70pl19uorq@4ax.com>

Mime-Version: 1.0

Content-Transfer-Encoding: 7bit

Content-Type: text/plain; charset=us-ascii

On Mon, 6 Dec 2004 20:01:07 EST, you wrote:

> I've

>thrown out a fair number that were high but never that I can recall any that were
>low.

Carbon power resistors can surely go low, sometimes with no visible
crisptitude.

A long time ago in a detachment far away, I was trying to fix a loran set
(APN-70) whose time base was just a skoshe high in freq, so it couldn't
lock onto the master pulse. The crystal was socketed, and a quick swap
indicated it was fine. B+ for the oscillator was dropped/decoupled from a
regulated bus, though not re-regulated. Eventually, I checked plate
voltage on the oscillator, and it was high; almost up to the bus it came
from. Yes, the carbon resistor that looked fine (10K 1 watt; see what an

old twidget wastes brain cells on?) was nearly shorted. Replacing it made everyone happy, from the shop chief way down to me. And a valuable lesson learned.

Gary Woods AKA K2AHC- PGP key on request, or at home.earthlink.net/~garygarlic
Zone 5/6 in upstate New York, 1420' elevation. NY WO G

--

No virus found in this outgoing message.

Checked by AVG Anti-Virus.

Version: 7.0.289 / Virus Database: 265.4.6 - Release Date: 12/5/2004

Message-ID: <02b201c4dbfe\$1dde4aa0\$6601a8c0@akorn.net>

From: "Tom Rauch" <w8ji@contesting.com>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Mon, 6 Dec 2004 20:43:13 -0500

MIME-Version: 1.0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

> I won't take exception with your Sylvania or Dentron
examples. I'm sure that
> they happened. But in my lifetime (I'll soon be 61), I've
repaired or
> restored an unknown number but certainly in the hundreds
of WW-II and Korean War
> vintage military radios and related accessories. I've
checked and sometimes had
> to replace lots of carbon composition resistors and with
the possible
> exception of a few really crispy critters, it was
invariably because they had aged out
> of tolerance high, not low. Same comment applies to
unused ones. I've
> thrown out a fair number that were high but never that I
can recall any that were
> low.

The normal operational failure mode at elevated temperature
in operation is a reduction of resistance.

Even in normal operation high value carbons can have a
negative temperature coefficient of up to 1/2 percent per
degree C. Some of that change with temperature isn't

recoverable and damage accumulates over time. Worse yet as the resistor slowly ages down in value if it feeds from a constant voltage source to a hard load (like a VR tube) the dissipation and heat increases, accelerating the aging process.

This is a common failure mechanism in parasitic suppressors in the hot airstream of large power grid tubes. Even with conservative dissipation ratings the elevation of temperature from external sources ages the resistor down in value.

The effect you are seeing is a common and widely known storage effect, rather than an operational or temperature related failure. It is caused by end caps or leads corroding over time and losing contact with the carbon core. That problem is largely overcome by using silver plated end caps (or leads if they are molded into or wrapped around the carbon substrate).

73 Tom

Message-ID: <41B520E0.4050309@cox.net>
Date: Mon, 06 Dec 2004 22:17:52 -0500
From: Mike Hanz <AAF-Radio-1@cox.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: EF Johnson VFO Mod Instructions?
Content-Type: text/plain; charset=ISO-8859-1; format=flowed
Content-Transfer-Encoding: 7bit

That has been my experience as well, though probability theory suggests that there will be occasional outliers in the opposite direction. It's hard to measure the charred ones, of course. <g>

One of my favorite references is a book titled Handbook of Components for Electronics, and it has the following comments:

"The chief disadvantage of carbon composition resistors is their variability with shelf and service life. Water absorption from exposure to humid atmospheres in nonoperating storage changes the resistance value dramatically...Moisture causes resistance generally to increase, with the change amounting to as much as several percent. The moisture can be safely removed and a /partial/ value recovery effected by baking or operational-temperature rise, provided temperatures used are no higher than 100 degrees C. Permanent effects on the organic structure are accelerated at higher temperatures. The recovery is temporary

unless subsequent moisture is scrupulously excluded, however. In service, normal relative humidities and irreversible operational aging can cause resistance value to vary well outside purchase tolerances, particularly for the 5 and 10 percent tolerance."

73,
Mike

WA5CAB@cs.com wrote:

>In my lifetime (I'll soon be 61), I've repaired or
>restored an unknown number but certainly in the hundreds of WW-II and Korean War
>vintage military radios and related accessories. I've checked and sometimes had
>to replace lots of carbon composition resistors and with the possible
>exception of a few really crispy critters, it was invariably because they had
aged out
>of tolerance high, not low. Same comment applies to unused ones. I've
>thrown out a fair number that were high but never that I can recall any that were
>low.
>

From: WA5CAB@cs.com
Message-ID: <6d.39f0dfc4.2ee6868e@cs.com>
Date: Mon, 6 Dec 2004 23:07:42 EST
Subject: Re: EF Johnson VFO Mod Instructions?
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="part1_6d.39f0dfc4.2ee6868e_boundary"

--part1_6d.39f0dfc4.2ee6868e_boundary
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit

Gary,

Well, I guess that there are always exceptions. I made Master Chief and then W4 without encountering one. As you may recall, that takes a few years.

In a message dated 12/6/2004 7:38:54 PM Central Standard Time,
garygarlic@earthlink.net writes:

> Carbon power resistors can surely go low, sometimes with no visible
> crispitude.
>
> A long time ago in a detachment far away, I was trying to fix a loran set
> (APN-70) whose time base was just a skoshe high in freq, so it couldn't
> lock onto the master pulse. The crystal was socketed, and a quick swap

> indicated it was fine. B+ for the oscillator was dropped/decoupled from a
> regulated bus, though not re-regulated. Eventually, I checked plate
> voltage on the oscillator, and it was high; almost up to the bus it came
> from. Yes, the carbon resistor that looked fine (10K 1 watt; see what an
> old twidget wastes brain cells on?) was nearly shorted. Replacing it made
> everyone happy, from the shop chief way down to me. And a valuable lesson
> learned.
>

Robert Downs - Houston
CW04 USNR Ret'd
<<http://www.wa5cab.com>> (Web Store)
<wa5cab@cs.com> (Primary email)
<wa5cab@houston.rr.com> (Backup email)

--part1_6d.39f0dfc4.2ee6868e_boundary
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

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*      is not set to send PLAIN TEXT ONLY and needs adjusting *
* * * * *
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--part1_6d.39f0dfc4.2ee6868e_boundary--

From: WA5CAB@cs.com
Message-ID: <129.51b76596.2ee68ee7@cs.com>
Date: Mon, 6 Dec 2004 23:43:19 EST
Subject: Re: EF Johnson VFO Mod Instructions?
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="part1_129.51b76596.2ee68ee7_boundary"

--part1_129.51b76596.2ee68ee7_boundary
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit

Tom,

I'm sorry, but my 45 years of operational experience is at odds with your
statements. I learned how to read an ohmmeter a couple of years before I

started in EE at LSU in '61. The ones that the Navy used in Vietnam worked the same way. As did those that LA Tech was using when I got my BSEE degree after I came home from Vietnam. And as have all of them since. And regardless, vintage carbon composition resistors drift up in age, not down. I could probably show you 10,000 examples in my shack or storage building tonight.

In a message dated 12/6/2004 7:44:06 PM Central Standard Time, w8ji@contesting.com writes:

> The normal operational failure mode at elevated temperature
> in operation is a reduction of resistance.
> Even in normal operation high value carbons can have a
> negative temperature coefficient of up to 1/2 percent per
> degree C. Some of that change with temperature isn't
> recoverable and damage accumulates over time. Worse yet as
> the resistor slowly ages down in value if it feeds from a
> constant voltage source to a hard load (like a VR tube) the
> dissipation and heat increases, accelerating the aging
> process.
>
> This is a common failure mechanism in parasitic suppressors
> in the hot airstream of large power grid tubes. Even with
> conservative dissipation ratings the elevation of
> temperature from external sources ages the resistor down in
> value.
>
> The effect you are seeing is a common and widely known
> storage effect, rather than an operational or temperature
> related failure. It is caused by end caps or leads corroding
> over time and losing contact with the carbon core. That
> problem is largely overcome by using silver plated end caps
> (or leads if they are molded into or wrapped around the
> carbon substrate).

73

Robert Downs - Houston
<<http://www.wa5cab.com>> (Web Store)
<wa5cab@cs.com> (Primary email)
<wa5cab@houston.rr.com> (Backup email)

--part1_129.51b76596.2ee68ee7_boundary
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

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* Mail Lists at theporch.com only accept PLAIN TEXT *
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* is not set to send PLAIN TEXT ONLY and needs adjusting *
* * * * *

--part1_129.51b76596.2ee68ee7_boundary--

Message-ID: <003b01c4dc19\$530005a0\$27e47443@KB6NAX>

From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Mon, 6 Dec 2004 20:44:10 -0800

MIME-Version: 1.0

Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

> Carbon resistors should NEVER be used in critical voltage
> dropping applications. Carbon, being a semiconductor, tends
> to fail shorted.

It only took 39 years but someone finally came to my defense. I pissed off a Navy A school instructor when he told the class there was no such thing as a shorted resistor and I contradicted him. I had already by then repaired stuff with carbon resistors that had drastically decreased in value. Came close to having a chat with the Chief!

Arden Allen
KB6NAX

Message-ID: <003c01c4dc19\$54e76340\$27e47443@KB6NAX>

From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Mon, 6 Dec 2004 20:57:46 -0800

MIME-Version: 1.0

Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

> I won't take exception with your Sylvania or Dentron examples. I'm sure that
> they happened. But in my lifetime (I'll soon be 61), I've repaired or
> restored an unknown number but certainly in the hundreds of WW-II and Korean War
> vintage military radios and related accessories. I've checked and

sometimes had
> to replace lots of carbon composition resistors and with the possible
> exception of a few really crispy critters, it was invariably because they
had aged out
> of tolerance high, not low. Same comment applies to unused ones. I've
> thrown out a fair number that were high but never that I can recall any
that were
> low.

Bob, this is what I call the carbon resistor failure conundrum. Carbon resistors are a mixture of carbon and pottery clay, simply speaking. The higher the value the less carbon in the mix. I agree with you, most aged resistors we encounter have increased in value, some as much as 10X. But the peculiar effect Tom refers to is what happens with a resistor of medium resistance, 4.7-47K or thereabouts that has been operated for a sustained period at a proportionately high dissipation with respect to its rating. I guess the carbon/clay mix undergoes physical/chemical changes and the value drops, increasing its dissipation if in a power supplying circuit. At some point the resistance drops enough that the dissipation begins to decrease as circuit current limitation is reached. Often by then the circuit does not operate correctly anymore as in the Johnson VFO example. But more often than not a resistor becomes hot enough that it simply burns itself enough to drastically increase in value. Like cooking a quality cut of beef, you have to do it right!

Arden Allen
KB6NAX

Message-ID: <006401c4dc41\$5b581260\$0404a8c0@brian>
From: "Brian Clarke" <brianclarke01@optusnet.com.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: EF Johnson VFO Mod Instructions?
Date: Tue, 7 Dec 2004 20:44:31 +1100
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="-----_NextPart_000_0061_01C4DC9D.8D6996A0"

This is a multi-part message in MIME format.

-----_NextPart_000_0061_01C4DC9D.8D6996A0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

Hi All,

Interesting thread.

Metals have a positive temperature coefficient of resistance and=20
semiconductors have a negative coefficient - here we are referring=20
to the alpha coefficient - the linear one; as all good mathematically=20
inclined physicists would know, there are also beta and gamma=20
and delta and so on coefficients, some of which are negative, and=20
whose effect is more pronounced at elevated temperatures.=20

What Tom seems to be saying, without giving us the benefit of=20
any references, is that we should look on carbon as a=20
semiconductor. Got a reference for this, Tom?

The other effect Tom refers to, the storage effect, where there is=20
allegedly corrosion between the end cap and the carbon rod, has=20
the effect of raising the resistance, independent of the physics=20
of the carbon. Any reference, Tom?=20

However, in my experience of electronics, a mere 56 years, all=20
carbon resistors have aged high. The worst I have seen is=20
where a resistor got hot enough to split the end caps and then=20
when it cooled, the residual resistance was as near as infinity=20
as I could measure. The only time I've seen resistors apparently=20
go low, is when the original wireman put in the wrong resistor in=20
the first place - got the significant numerators correct but got=20
the multiplier wrong. Very easily done with these modern day=20
resistors with their microdot-sized bands, where my rods and=20
cones don't get enough light to see colours.

73 de Brian, VK2GCE.=20=

-----=_NextPart_000_0061_01C4DC9D.8D6996A0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

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*      ---REMAINDER OF MESSAGE TRUNCATED---      *
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-----=_NextPart_000_0061_01C4DC9D.8D6996A0--

Message-ID: <000a01c4dc48\$a6c682c0\$6601a8c0@akorn.net>
From: "Tom Rauch" <w8ji@contesting.com>

To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: EF Johnson VFO Mod Instructions?
Date: Tue, 7 Dec 2004 05:36:45 -0500
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

ITT
Reference Data for Radio Engineers

I'm sure I could chase down more, but I'm bad about doing
free research.

and various manufacturer's text over the years as well as my
experience in manufacturing engineering.

73, Tom W8JI

What Tom seems to be saying, without giving us the benefit
of
any references, is that we should look on carbon as a
semiconductor. Got a reference for this, Tom?>>

The other effect Tom refers to, the storage effect, where
there is
allegedly corrosion between the end cap and the carbon rod,
has
the effect of raising the resistance, independent of the
physics
of the carbon. Any reference, Tom?>>>

However, in my experience of electronics, a mere 56 years,
all
carbon resistors have aged high.>>>

All that indicates a lack of experience with heat related or
operational failures, rather than humidity and storage
failures that traditionally cause open connections.

73 Tom

Message-ID: <001a01c4dc4b\$e64a3f60\$6601a8c0@akorn.net>
From: "Tom Rauch" <w8ji@contesting.com>
To: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: EF Johnson VFO Mod Instructions?

Date: Tue, 7 Dec 2004 06:00:01 -0500

MIME-Version: 1.0

Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

> resistors we encounter have increased in value, some as
much as 10X. But
> the peculiar effect Tom refers to is what happens with a
resistor of medium
> resistance, 4.7-47K or thereabouts that has been operated
for a sustained
> period at a proportionately high dissipation with respect
to its rating.

Actually Arden the negative drift problem is even worse in
high value composition types. We ran into that at Heathkit
and other places whenever someone tried to sample and
substitute carbon comps for special HV metal film types.

If you look at the old Dentron amps with filter capacitor
failures you'll see those are 100k ohm. When I got dragged
into the Ameritron thing they had to replace hundreds and
hundreds of resistors under recall because someone did the
same thing.

I've seen HV meters in newer gear blow out because of the
same things when carbon high-values were used in a series
string, even when within the resistors voltage and
dissipation limits.
(please don't demand I supply a reference for voltage
ratings!)

Use what you like, but if a resistor is used at elevated
temperatures I'm giving you fair notice....don't use carbon
comps. Also NEVER use carbon in a location where a reduced
resistance can cause a catastrophic failure in the system,
be it a Johnson VFO, meter multiplier, or equalizer in a
string of voltage-components.

Never assume because you check 10,000 resistors over the
past 90 years that were mostly sitting or running cool that
is the failure mechanism in carbon comps subjected to heat.
It isn't.

This is an old argument I can remember as long ago as when I
talked to Sylvania about the stupid use of carbons to lower

HV in TV sets and the same thing we had at Prime Instruments manufacturing panel meters and at various manufacturers I've designed for where carbons were used in voltage dropping applications. Same thing, different day.

73 Tom

Date: Tue, 7 Dec 2004 08:15:10 -0600 (CST)
From: Bob Roehrig <broehrig@aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: EF Johnson VFO Mod Instructions?
Message-ID: <Pine.OSF.4.58.0412070813460.147075@mail.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Mon, 6 Dec 2004, Arden Allen wrote:

> I had already by then repaired stuff with carbon resistors that had
> drastically decreased in value.

I have replaced many carbons that dropped drastically in value, mostly in higher powered circuits.

Bob Roehrig
Aurora University Telecom dept.
broehrig@aurora.edu 73 de K9EUI
630-844-4898 fax 630-844-4222
"Nostalgia is a thing of the past"

Message-ID: <41B5BBC0.4020406@ix.netcom.com>
Date: Tue, 07 Dec 2004 08:18:40 -0600
From: David Stinson <arc5@ix.netcom.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: EF Johnson VFO Mod Instructions?
Content-Type: text/plain; charset=us-ascii; format=flowed
Content-Transfer-Encoding: 7bit

Bob Roehrig wrote:

> On Mon, 6 Dec 2004, Arden Allen wrote:
>

>

>>I had already by then repaired stuff with carbon resistors that had
>>drastically decreased in value.

Ya'll are actually debating two seperate issues.

I think both sides of this debate are correct within their context-

Carbon resistors "on the shelf" or in low-power circuits will

age high in value. In high current/voltage

and/or high temperature applications, they can age low in value.

I've seen both, many times.

73 DE Dave AB5S

End of BOATANCHORS Digest 3735
